



World Food Programme



SAVING  
LIVES  
CHANGING  
LIVES

# Fill the Nutrient Gap Indonesia

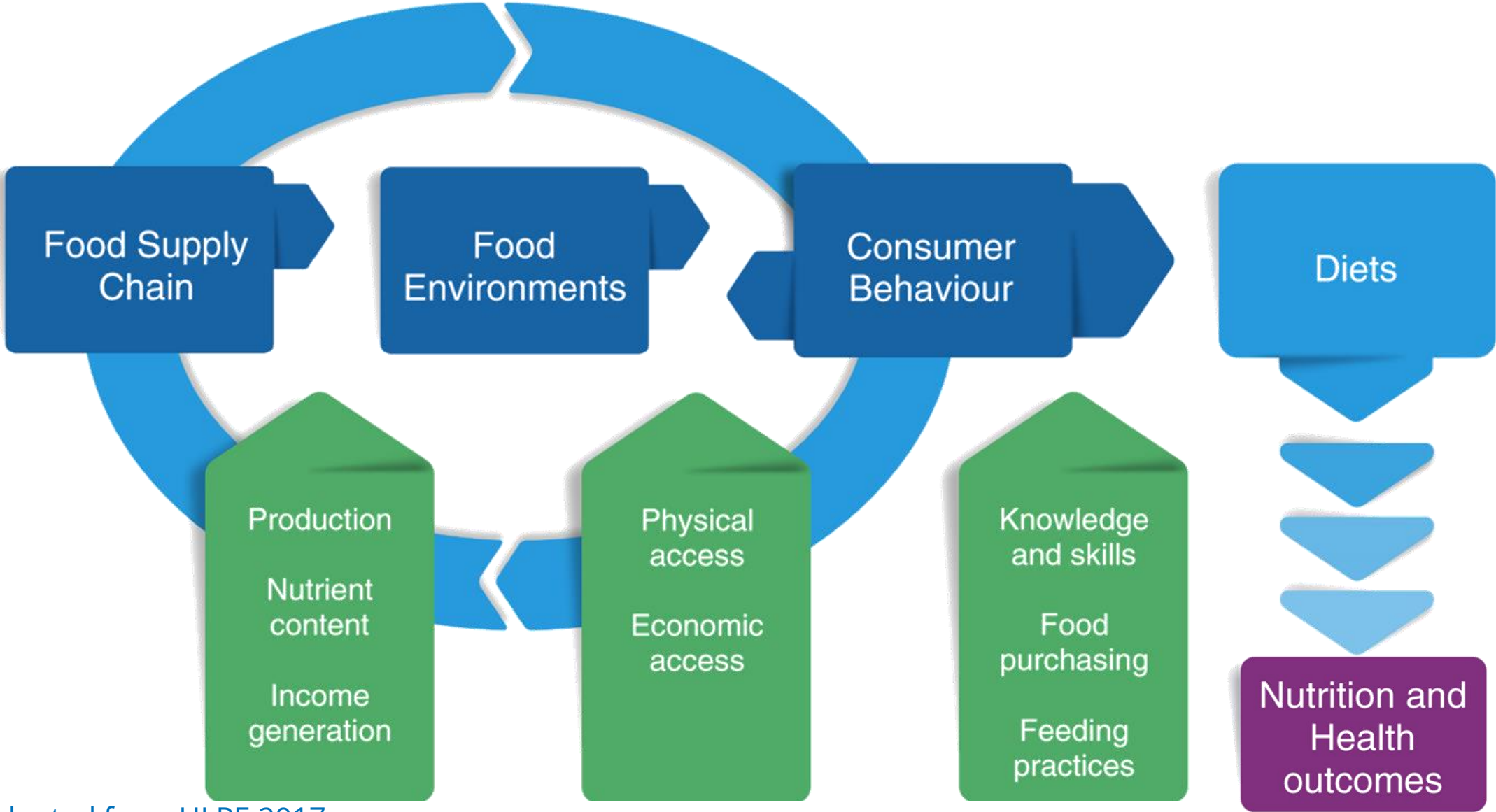
## Dissemination of Results

23 November 2021



SYSTEMS ANALYSIS FOR NUTRITION

# Food systems for diet and nutrition



Adapted from HLPE 2017

# The FNG Methodology



## Secondary data analysis and review



Characterize the food system & identify possible interventions and entry points

## Linear programming on Cost of the Diet



Estimate the minimum cost of a nutritious diet and its economic accessibility



- 1. Understand the challenges**
- 2. Model interventions to improve access and affordability of nutritious diets**
- 3. Inform a prioritization of interventions across sectors**

# Modelling scenarios: interventions from different sectors to improve access to nutritious diets

## • Social assistance:

- SEMBAKO
- Program Keluarga Harapan (PKH)
- Bantuan Sosial Tunai (BST)
- Increased income through agriculture
- Pekarangan Pangan Lestari (P2L)

**ADDITIONAL:** COVID impact on affordability of Diets (impacts on purchasing power)

- Rice fortification
- Vegetable oil fortification
- Wheat fortification
- Biofortification

**Increasing household income and food expenditure**

**Increasing nutrient content of foods**

**Targeted interventions for vulnerable individuals**

**Increasing availability or lowering prices of nutritious foods**

- Supplementation for adolescent girls and pregnant and lactating women (micronutrient powder, multiple micronutrient table, iron-folic acid)
- Breastfeeding and complementary feeding menus

- Social assistance:
  - SEMBAKO
  - Pekarangan Pangan Lestari (P2L)
  - Post-harvest loss reduction



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## Key Message 1

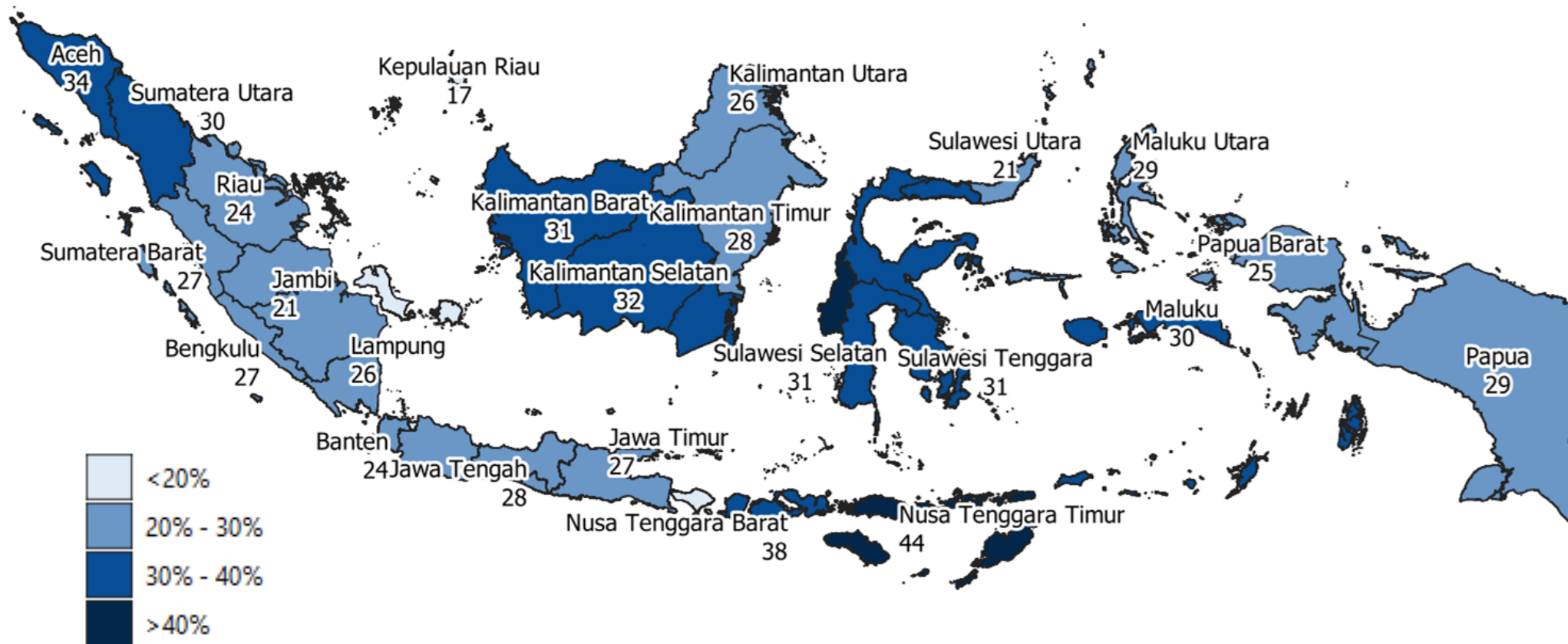
**Trends in Indonesia indicate significant progress in the fight against stunting. However obesity and non-communicable diseases are an increasing problem.**

**Despite limited data, evidence confirms that micronutrient deficiencies and their consequences are widespread.**

**Poor dietary quality remains the common factor underlying all forms of malnutrition.**

# Although stunting continues to decline in Indonesia, malnutrition remains high and regional progress is uneven

Stunting by Province, 2019<sup>(a)</sup>



Prevalence of Undernourishment (2020)<sup>(b)</sup>

**8.3%**

Prevalence of moderate/severe food insecurity (2020)<sup>(b)</sup>

**5.1%**

Prevalence of Wasting (2018)<sup>(c)</sup>

**10.2%**

Prevalence of Stunting (2019)<sup>(a)</sup>

**27.7%**

(a) SSGBI, 2019; (b) SUSENAS 2020; (c) Riskesdas, 2018

# National level data is limited, but there is sufficient evidence that micronutrient malnutrition is very high in Indonesia, due to poor dietary quality

## Rates of Anemia

- 24% **Nationally**
- 27% of **females**, 20% of **males**
- **Urban**: 23%    **Rural** 25%
- **Children** under 5: 39%
- **Pregnant women**: 49%

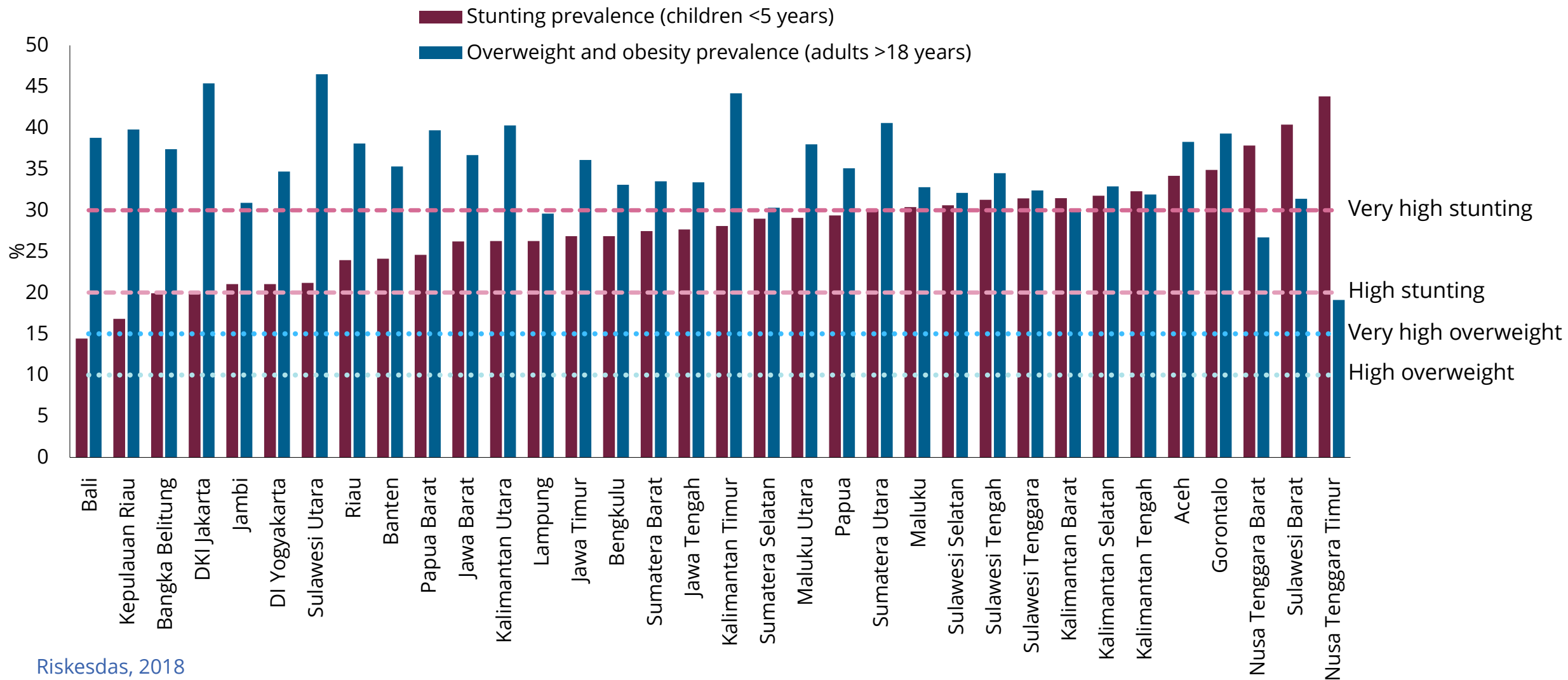


## Estimates for other MNs

- **Zinc** deficiency: >25% nationally<sup>(1)</sup>
- The proportion of children under-2 receiving **Minimum Dietary Diversity** ranges from 17% (Maluku Utara) to 68% (DI Yogyakarta)
- Children from **lower SES** at increased risk of multiple deficiencies<sup>(2)</sup>

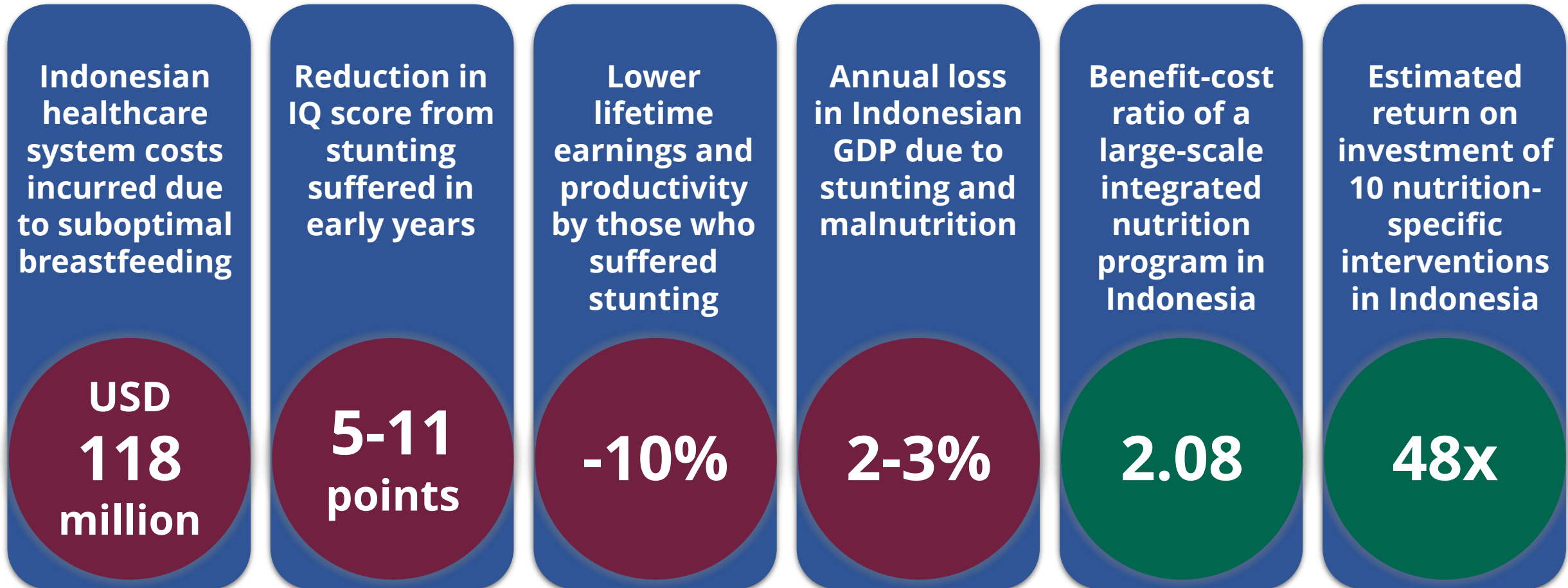
<b>Multiple Micronutrient Deficiencies</b>	...are difficult to measure, and <b>limited data exists</b> for Indonesia
	... <b>occur together</b> and with other forms of malnutrition
	...impair <b>physical and intellectual development</b> and immunity, and increase the risk of stunting, wasting, <i>and</i> overweight
	...like all forms of malnutrition, <b>low-quality diets</b> are a main cause

# While there is regional variation in the prevalence of overweight, all provinces face multiple burdens of malnutrition simultaneously





# Multiple forms of malnutrition take a heavy toll on Indonesia with severe consequences for human capital and long-term development, yet targeted interventions hold great potential





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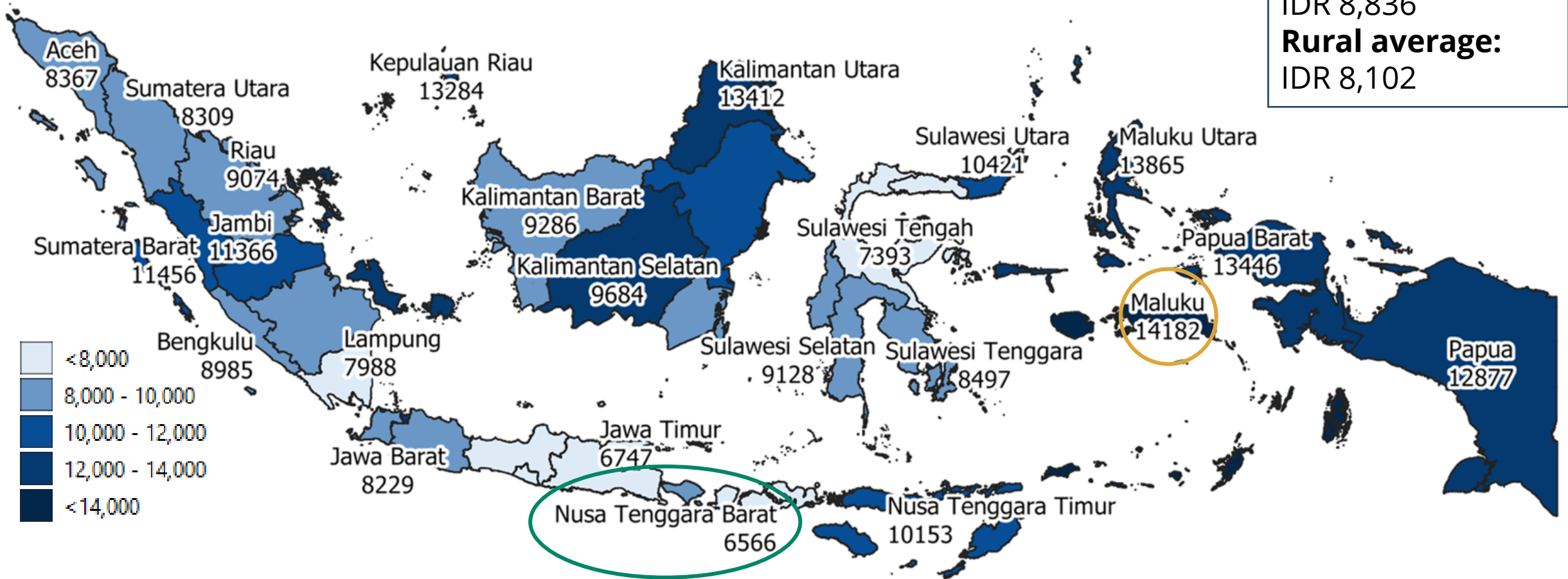
## Key Message 2

**The least-cost diet that meets nutritional needs would be between IDR 6,566 – 14,182 per capita per day, depending on location, or an average of IDR 8,532.**

**The nutritious diet is at least 2.5 times more expensive than a staple-based diet that meets only energy needs.**

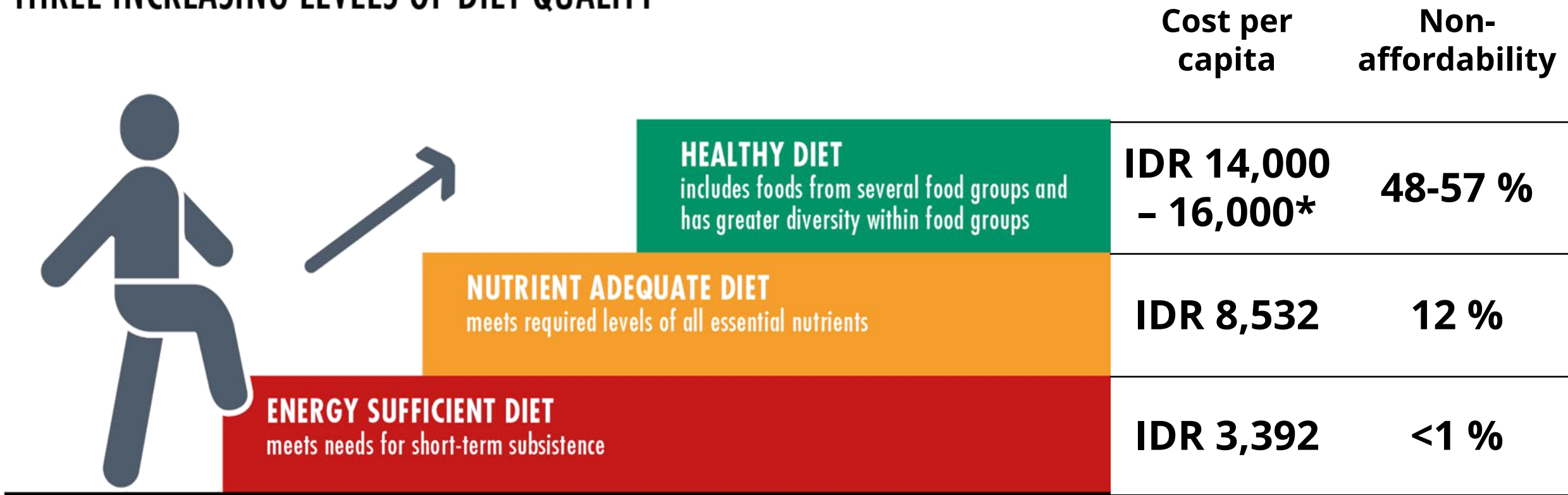
# On average, the Nutritious Diet costs IDR 8,532, ranging from IDR 6,566 (Nusa Tenggara Barat) to IDR 14,182 (Maluku)

*Average cost per province of the nutritious diet (IDR/capita/day)*



# A healthy diet, which includes greater dietary diversity and meets Indonesia's Food Based Dietary Guidelines, is estimated to cost 66% more than even the nutritious diet

## THREE INCREASING LEVELS OF DIET QUALITY



*\*Estimated range based on average cost difference between a "healthy diet" and a "nutrient adequate diet" for lower-middle income countries (lower bound) and for Indonesia specifically (upper bound) (SOFI, 2020)*



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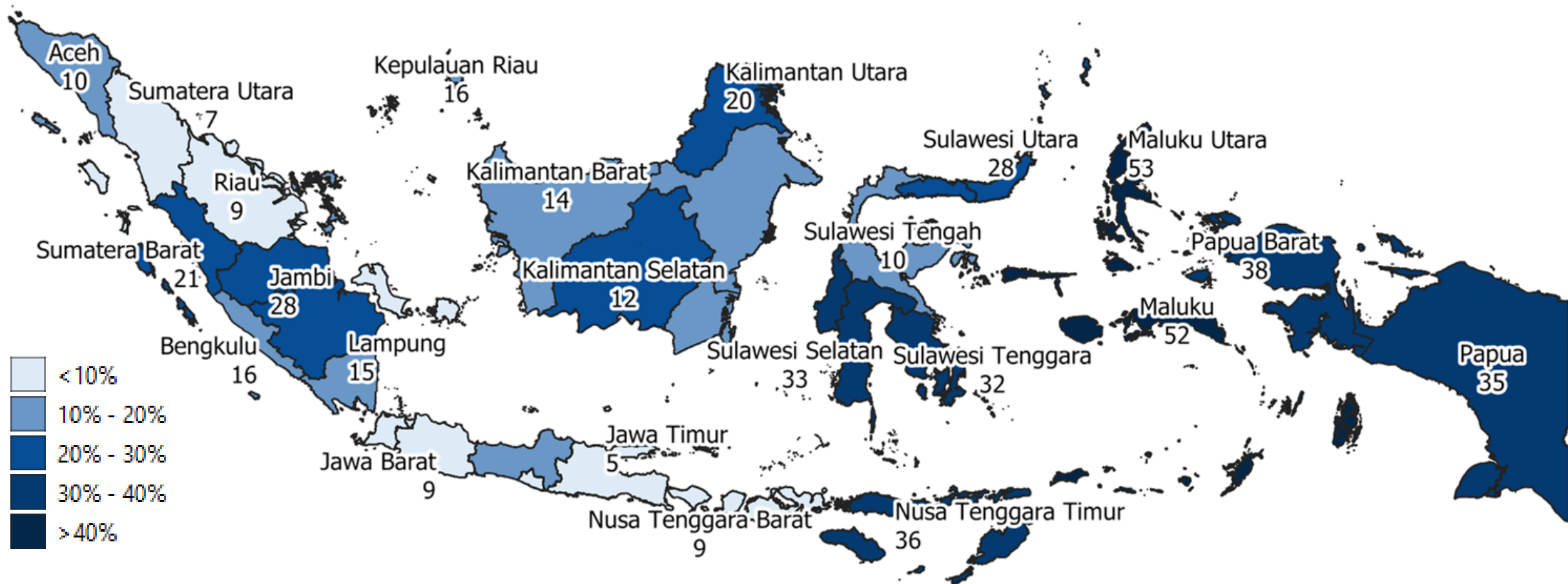
## Key Message 3

**Across the country, between 4 and 53% of the population, depending on location, could not afford the lowest cost nutritious diet based on SUSENAS 2019 data.**

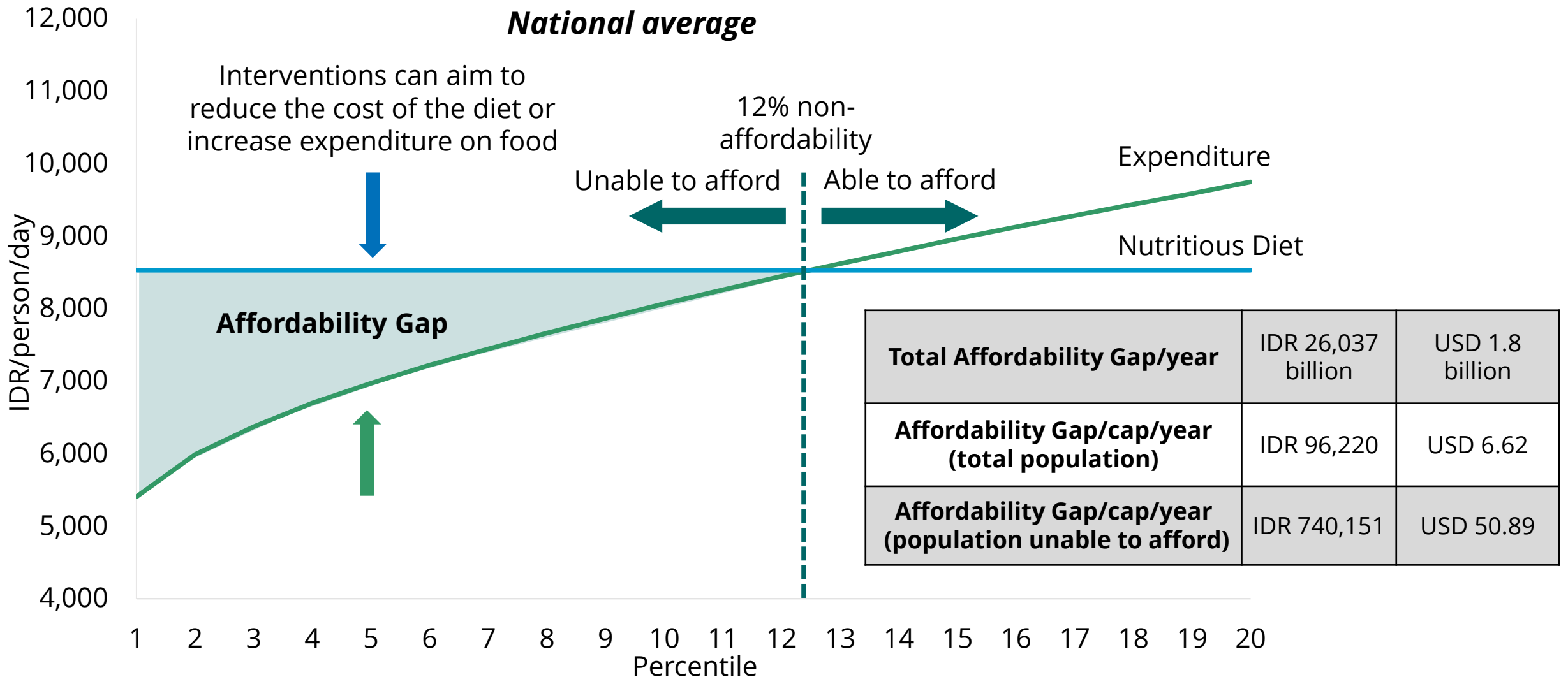
**A lower cost of the nutritious diet in a geographic area does not necessarily mean that it is more affordable.**

# Depending on the province, at least 4 to 53% of the population would not be able to afford a nutritious diet

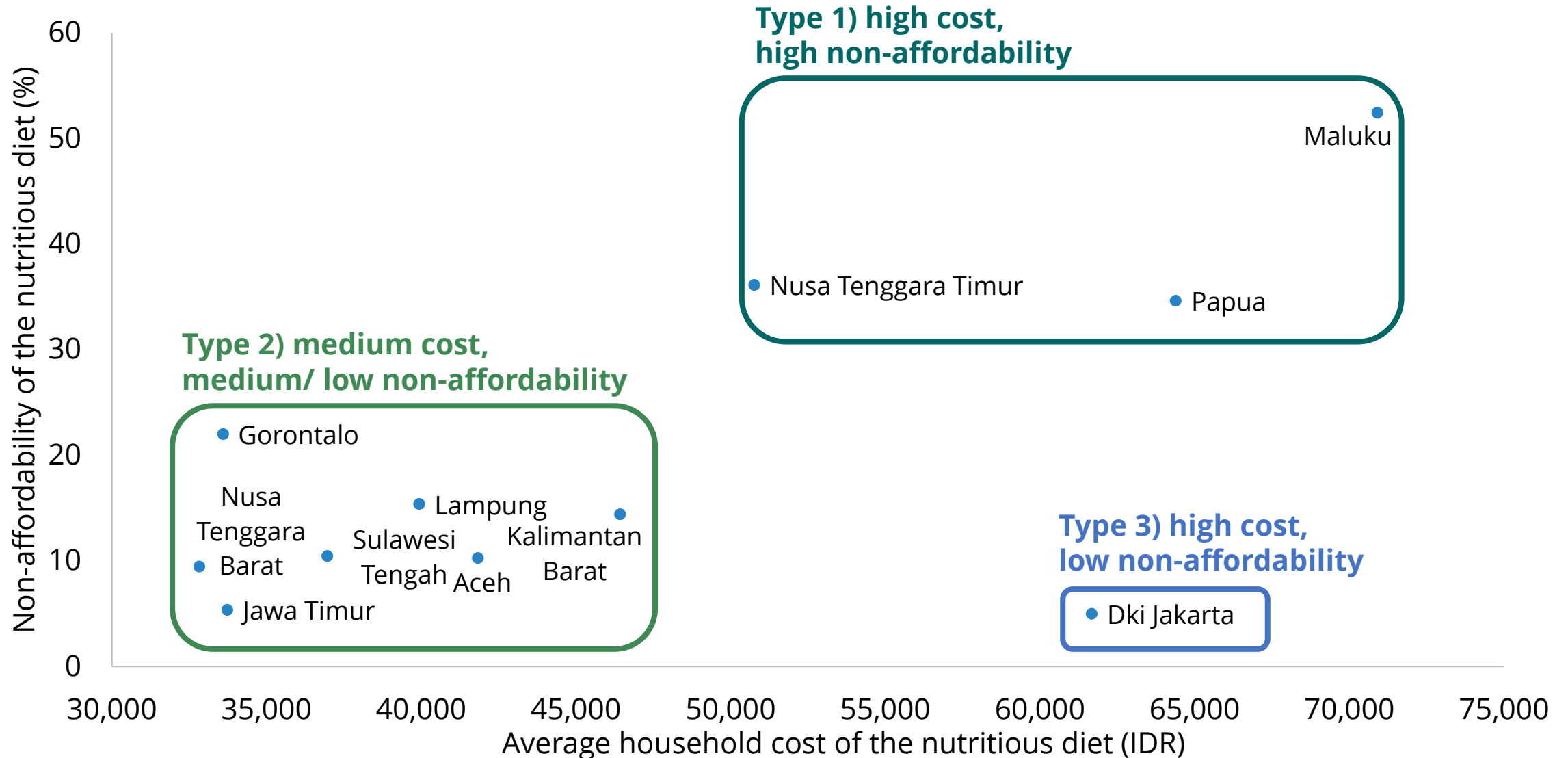
*Non-affordability of the nutritious diet, provincial average (%)*



# The total estimated Affordability Gap in Indonesia was at least IDR 26 trillion/year, even before COVID-19



# Typologies for scenario modelling and prioritization







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**Key Message 4**

**Numerous underlying drivers across a range of systems are responsible for the significant subnational variation in the cost and non-affordability of nutritious diets.**

# Diets in Indonesia remain heavily staple-dependent. As incomes increase, food expenditures switch mainly from staples to processed foods and meat.

Diets are heavily staple-based,  
with 40% of calories from cereals  
and tubers



Staple intake  
decreasing

Rice intake is slightly declining  
nationally, driven by the highest  
income quintile

Staples consumption is being  
replaced by processed and prepared  
foods and animal-source foods, but  
not fruits and vegetables



Increase in  
prepared  
foods

Expenditure on prepared foods is  
rising as a percentage of total food  
expenditure

25.9%  
2013

35.9%  
2019

# Many factors shape consumer choice and behavior. However, purchasing power ultimately constrains the nutritious choices available for vulnerable households



Food prices in Indonesia are among the highest in the region, with rice price approximately double that in Vietnam, Myanmar, Cambodia and Thailand

All but the wealthiest households spend more than half of their total expenditure on food. This leaves them nutritionally vulnerable to price increases or income loss

A 1000 IDR/kg increase in rice price reduced consumption and increased the risk of stunting by 2.44%

Increases in rice, beef, chicken, fish and egg prices led to lower consumption and increased risk of stunting



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## Key Message 5

**The impacts of the ongoing COVID-19 pandemic continue to exacerbate vulnerabilities.**

**Lower income households have been disproportionately affected, with more households falling into poverty and nutritious diets pushed even further out of reach for the most vulnerable.**

# The impacts of the crisis have been felt worst by the most vulnerable households, as many have lost their main source of income and fallen deeper into poverty



**Unemployment has increased,** and in the worst affected sectors many who remain employed are working and earning less



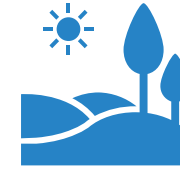
The biggest economic impact is on **incomes and purchasing power** rather than food prices



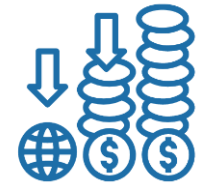
Low-skilled and low-wage workers, **women, youth, and bottom 40%** faced largest negative impact



More likely to **experience food shortages:** female headed HH, lower educ. levels, bottom 40%, urban HH, HH outside Java

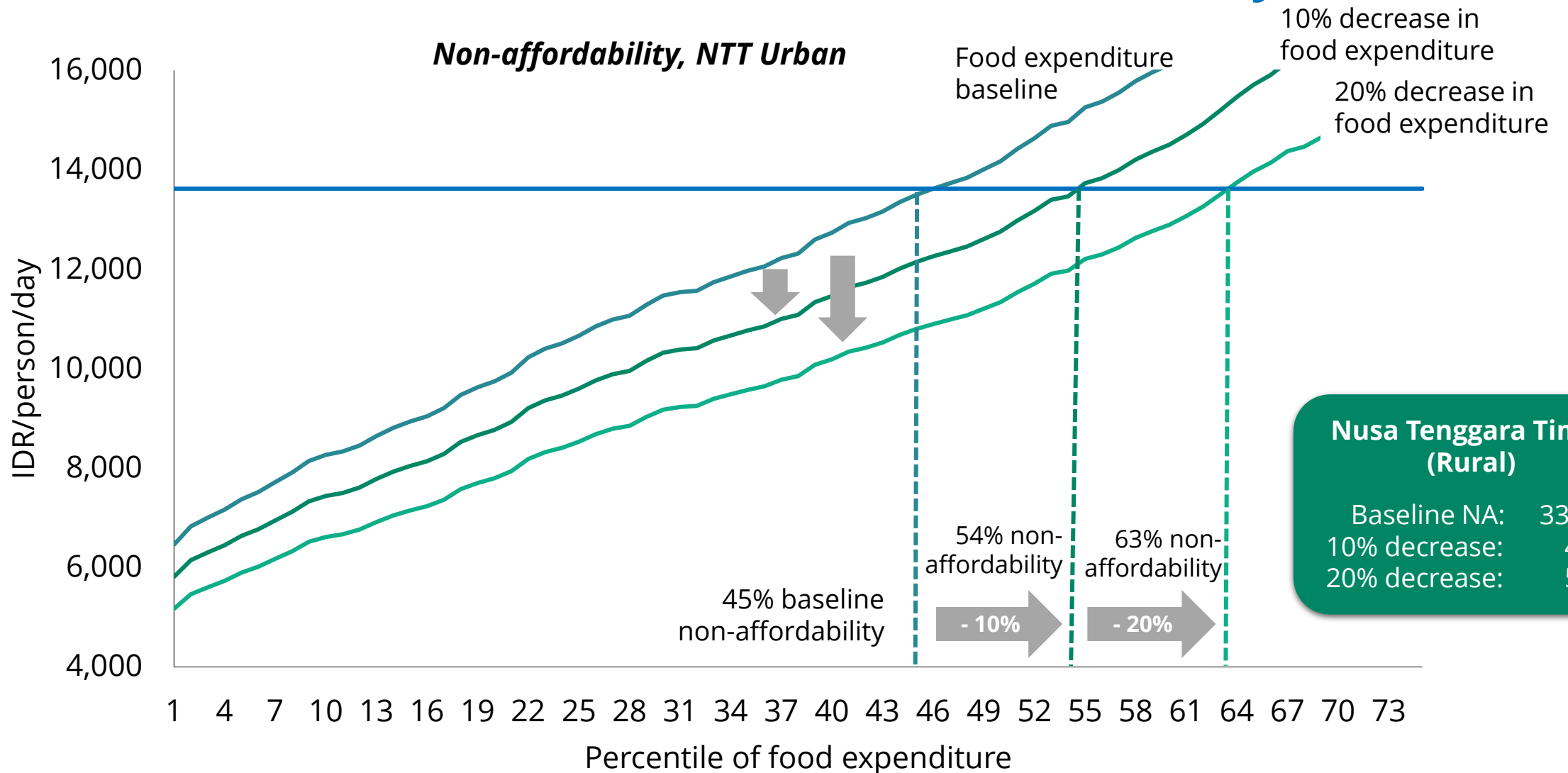


**Urban poor** were worst hit, but an estimated 47% of overall poverty increase is in **rural areas**



Households depleted savings and assets, **increasing their future vulnerabilities**

# In Nusa Tenggara Timur urban areas, a 10% loss in purchasing power would increase the level of non-affordability to 54%, while a 20% loss would increase non-affordability to 63%



# The COVID-19 situation remains dire, and the scenarios for recovery are unknown. However, many vulnerable groups will continue to be highly dependent on social protection

Estimates for GDP growth, depending on strength of the recovery

2021: 2.1% - 4.4%

2022: 3.1% - 5.0%

Poverty rate declines

10.2% to 9.5%

Estimated outcome: In case of continuation of the 2020 social protection package

Factors determining the strength of the recovery

National **caseload**, **trajectory** of the pandemic, global **financial** conditions

Poverty rate increases

10.2% to 11.2%

Estimated outcome: In case of reduction of the 2020 social protection package

# Section 1: Health and Vulnerable Groups







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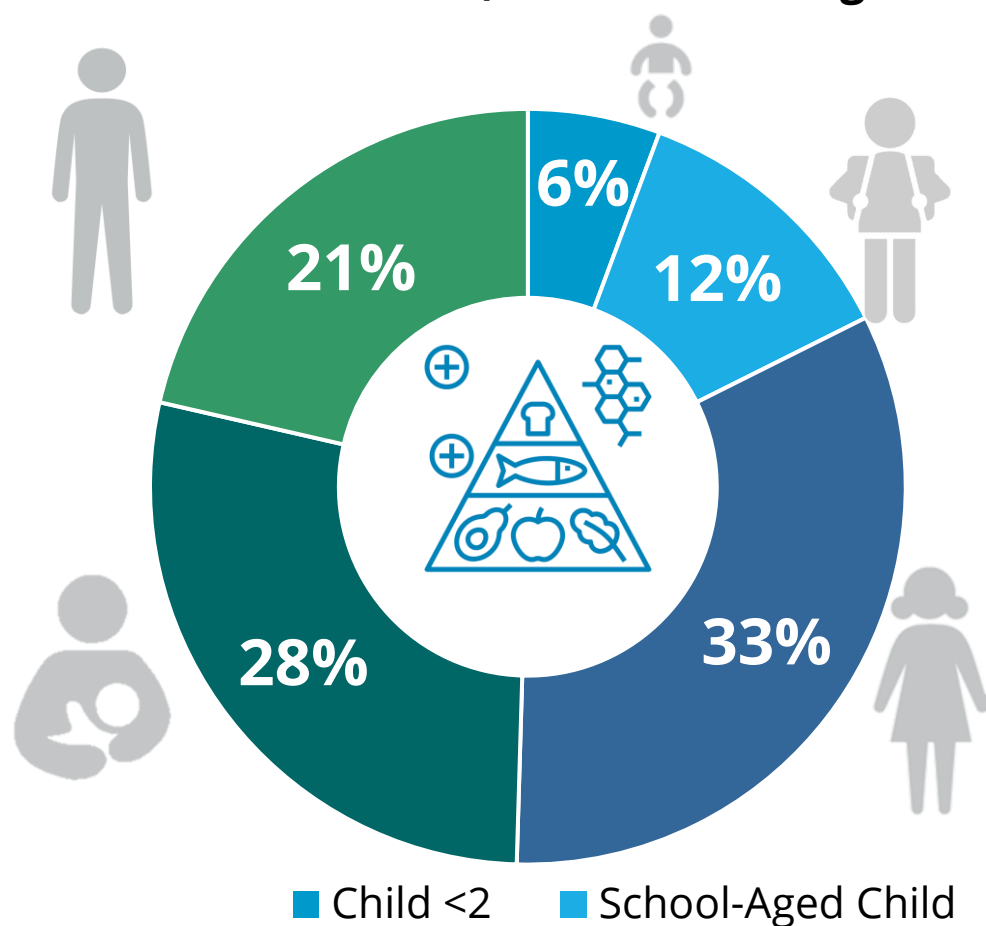
## Key Message 6

**Adolescent girls and pregnant and lactating women are the most vulnerable members of the household. They require high levels of nutrients which are expensive to obtain from local foods.**

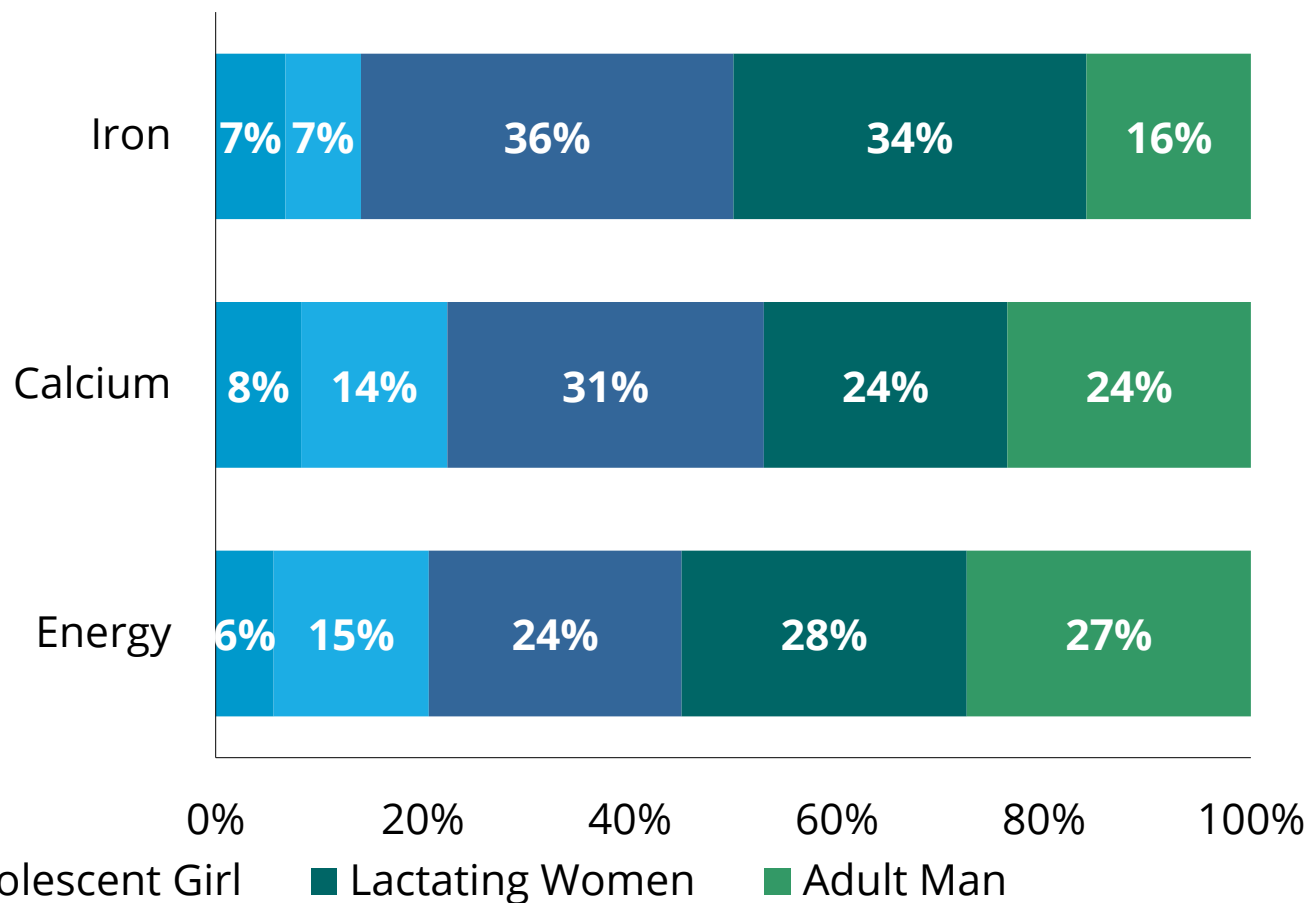
**Targeted interventions and fortification can reduce the burden of meeting their nutrient needs and improving nutrition outcomes.**

# The lactating woman & the adolescent girl account for over 60% of the household's cost of the nutritious diet putting them at higher risk of micronutrient deficiencies

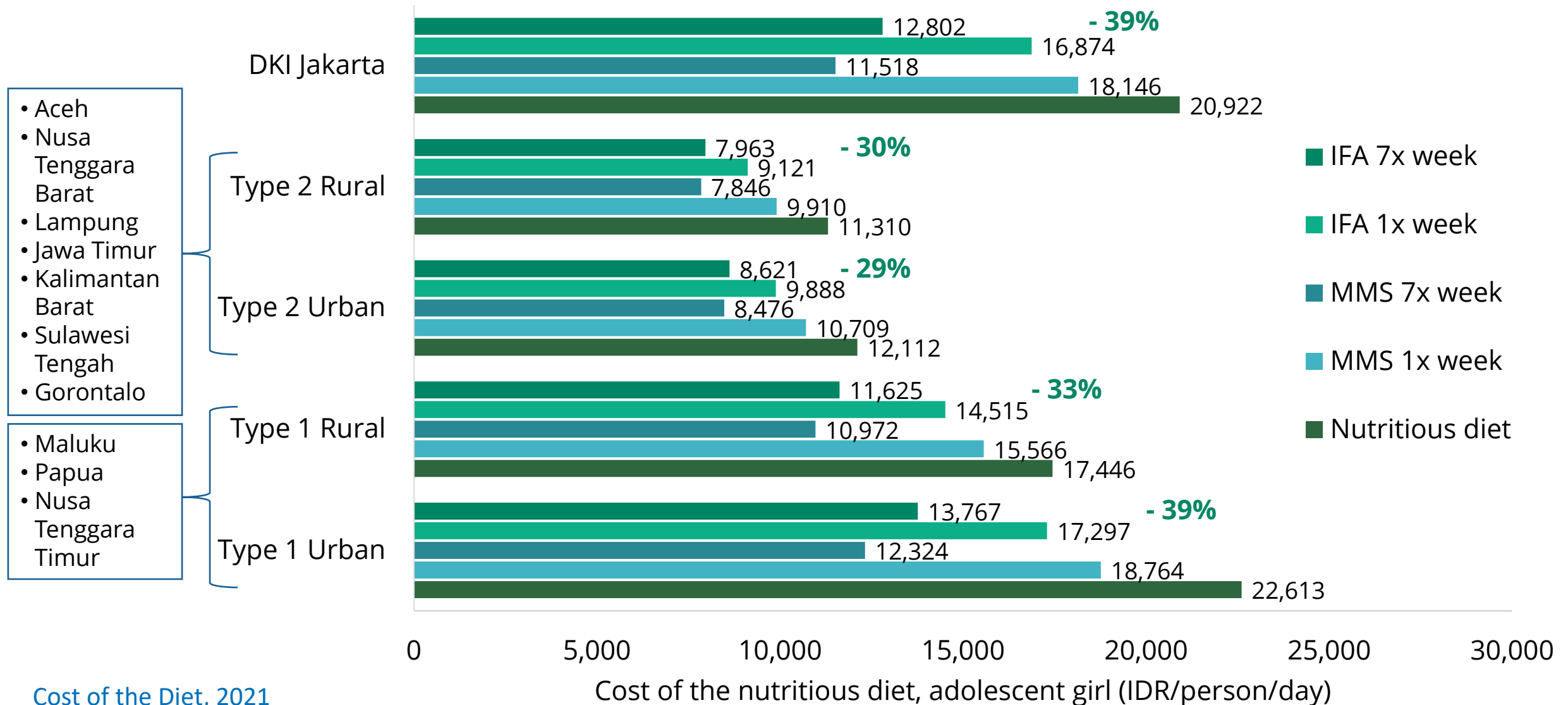
*Distribution of household cost of nutritious diet, national average*



*Distribution of household requirement of iron, calcium and energy intake*



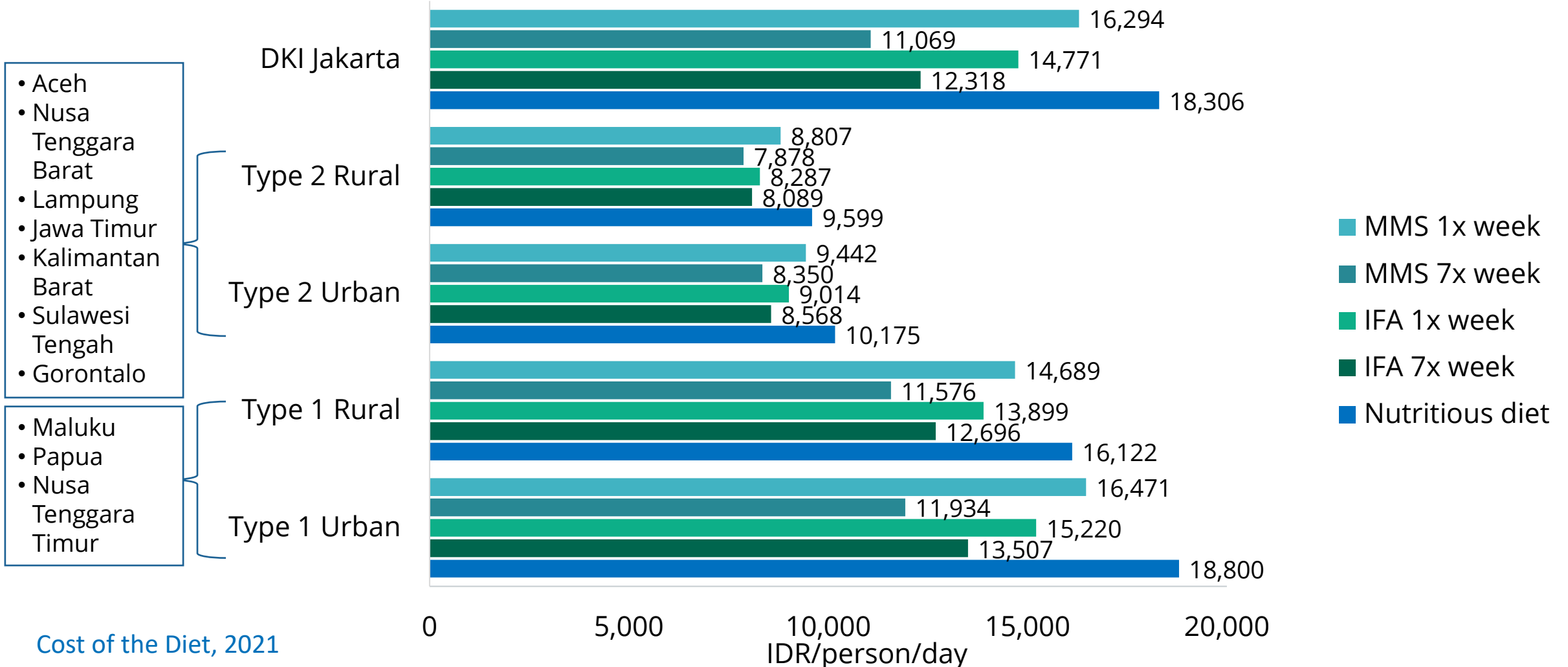
# For the adolescent girl, the IFA would have a greater impact on the cost of the diet when given 1 or 3 times per week. However, if taken daily, the MMS offers an advantage over IFA



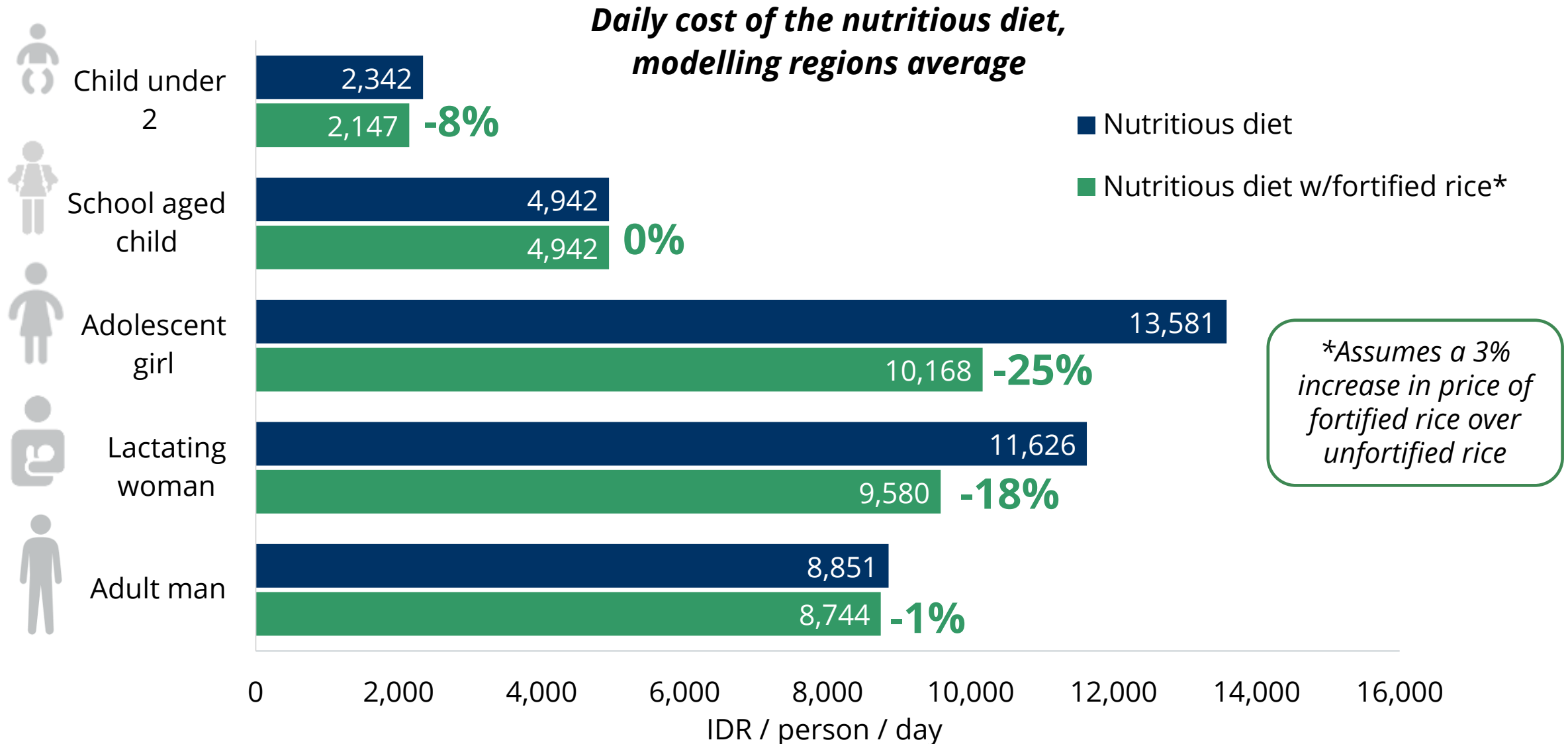


# When taken daily, the MMS is more effective as it provides a wider range of essential nutrients, reducing the diet cost up to 40%

**Daily cost of the nutritious diet for the lactating woman**



# Vulnerable individuals within the household would benefit most from post-harvest fortified rice





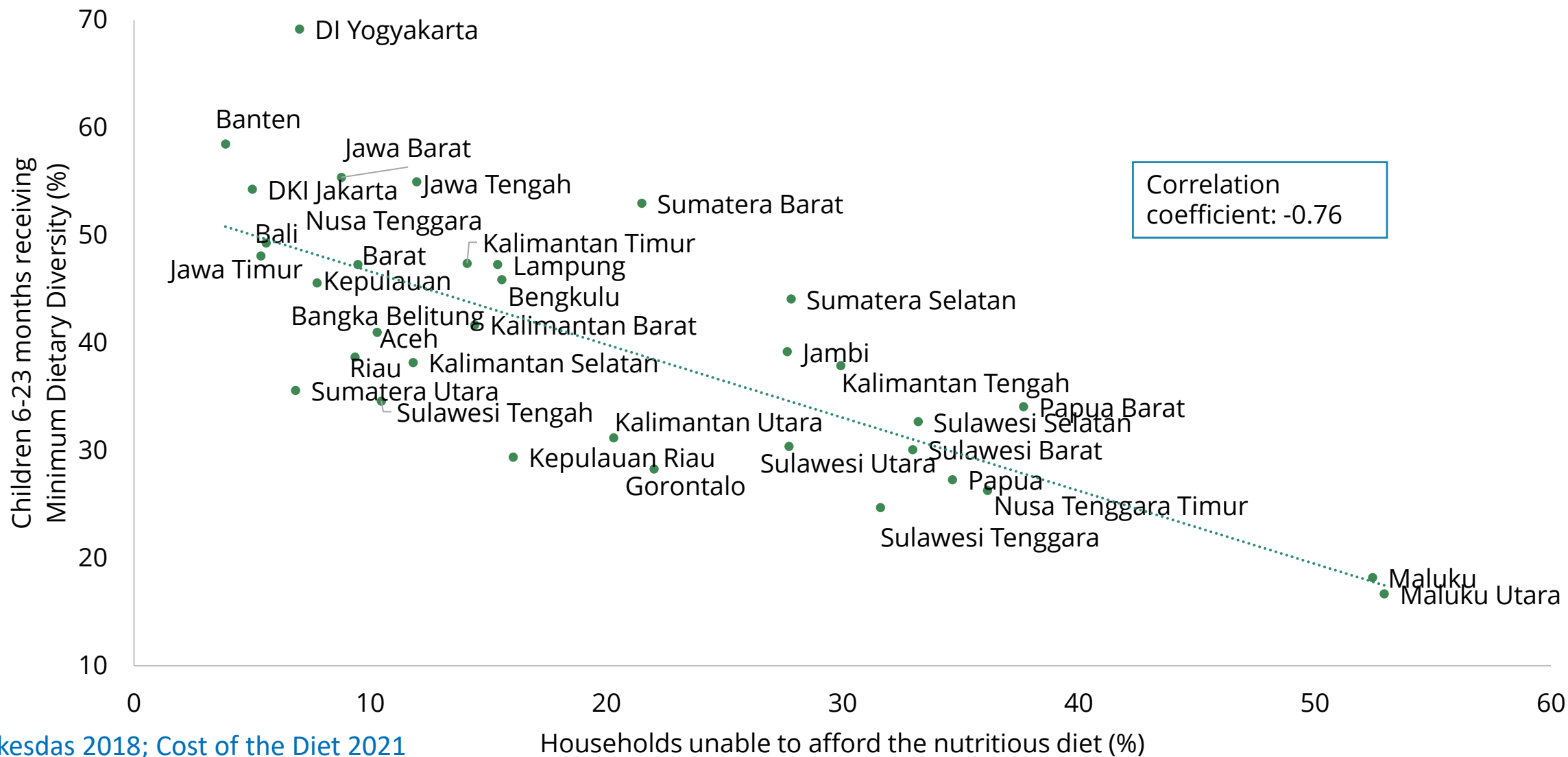
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## Key Message 7

**For children under 2 years old, suboptimal breastfeeding, low dietary diversity, and high consumption of unhealthy snack foods increase the cost of their nutritious diet and their risk of malnutrition, which has lifelong consequences.**



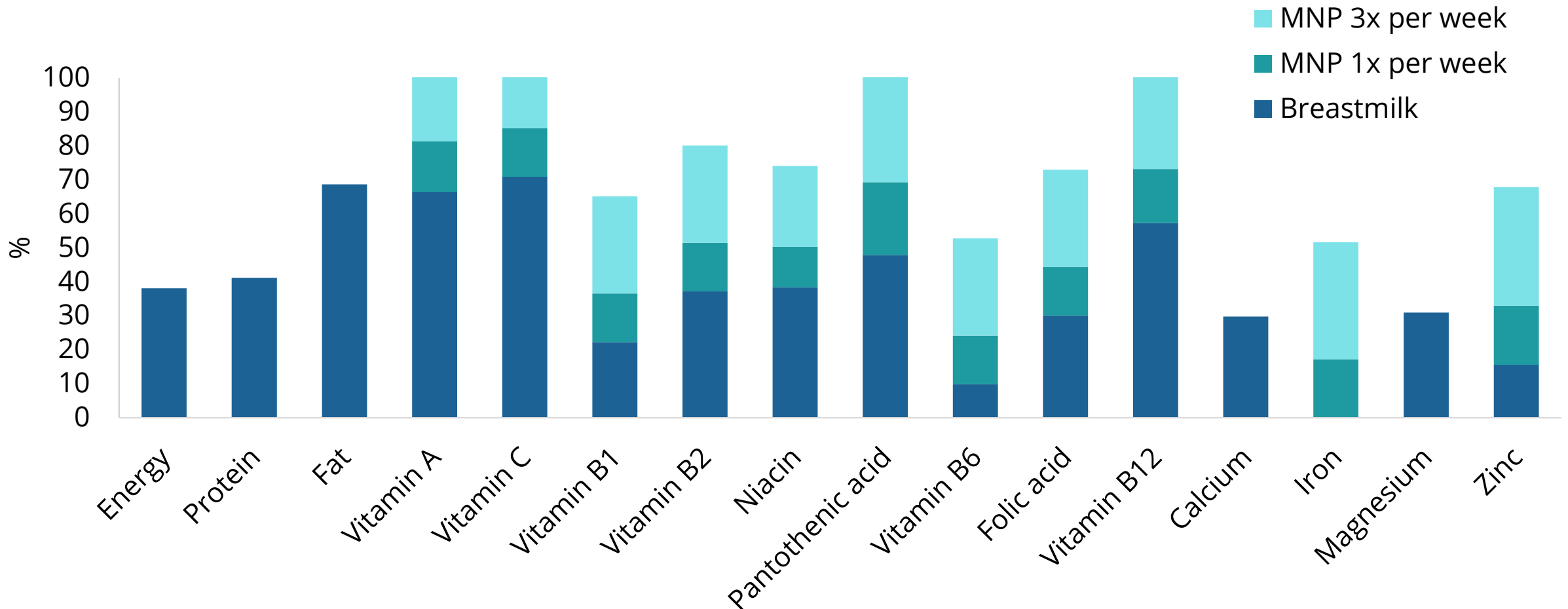
# Provinces with higher levels of non-affordability have a lower portion of children under 2 with Minimum Dietary Diversity, putting them at high risk for multiple forms of malnutrition





# Bubuk Tabur Gizi/Taburia (MNP) can complement breastmilk and complementary foods by providing additional micronutrients

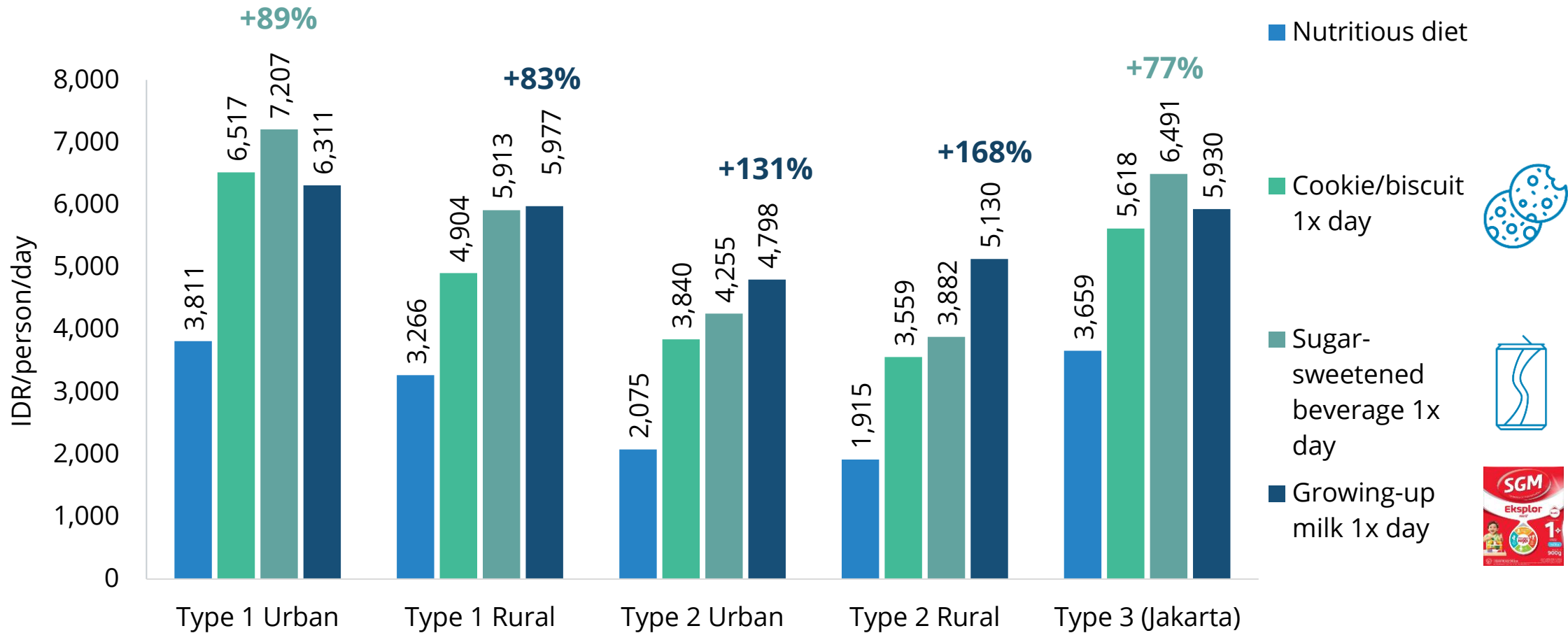
*Nutrient requirements for the child 12-23 months*







# Unhealthy snacks and drinks markedly increase the cost of meeting a child's nutrient needs. Note that 'growing up milks' have sugar content similar to soft drinks



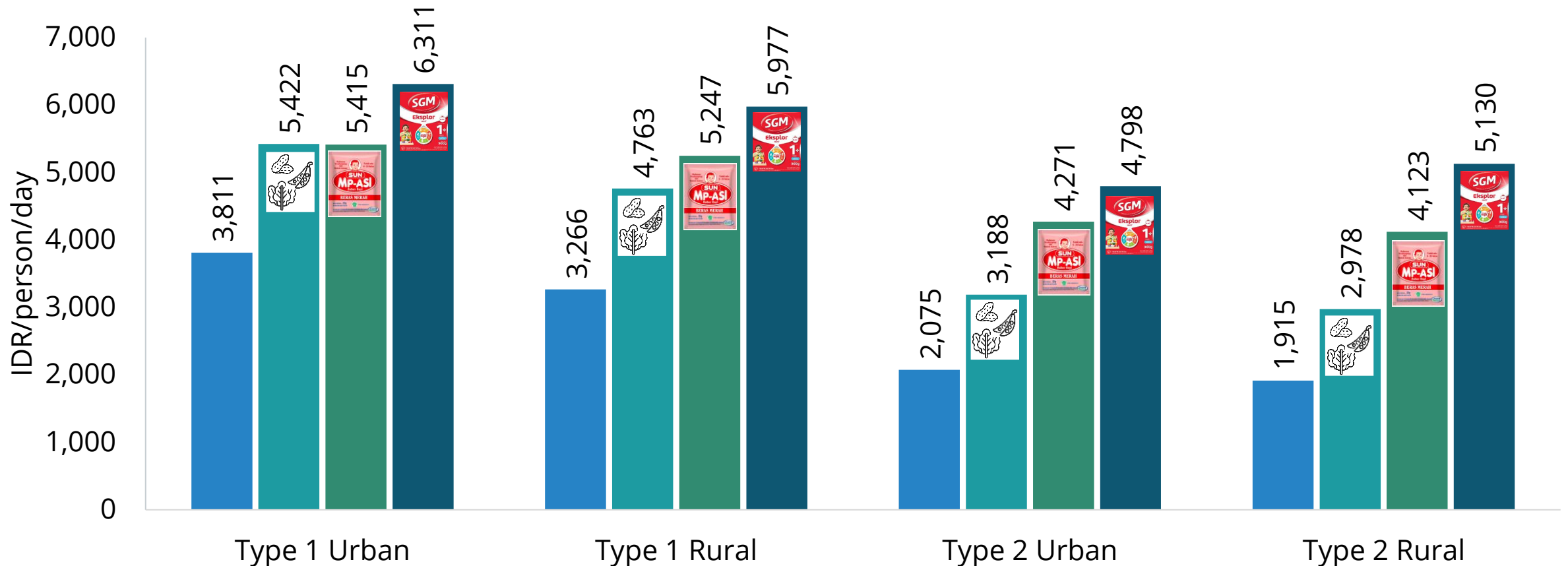


**MP-ASI provides good nutritional value for money compared to a well-selected complementary feeding recipe.**

**Sugar-sweetened beverages greatly increase the cost of a nutritious diet**

***Daily cost of the nutritious diet for the child under two***

■ Nutritious diet ■ Meal: sayur asam kangkung ■ MP-ASI 2x day ■ Growing-up milk





# Stakeholder prioritized interventions: Health (1/2)

- Strengthen and promote **exclusive breastfeeding** for infants under 6 months of age, and **continued breastfeeding** for young children between 6 and 24 months of age
  - Provide **adequate support** and information to mothers and caretakers **during critical breastfeeding periods**, such as at birth and during the first few weeks of life
  - Implement and monitor compliance of policies and regulations aiming to protect **maternity at the workplace**
  - Ensure and monitor compliance with the **WHO International Code of Marketing of Breastmilk Substitutes**



## Stakeholder prioritized interventions: Health (2/2)

- **Scale up Taburia** (multiple micronutrient powder) distribution for children aged 6-23 months where the non-affordability of the nutritious diet is high.
- Implement and scale up **nutrition education** components and programmes, especially for nutritionally vulnerable groups (caretakers of children under two, adolescent girls, pregnant and lactating women) in clinics, hospitals and schools, and through community health workers.
- Strengthen **regulation for processed foods** and to include regulation on sugar, salt, and fat content in such foods (or GGL- garam, gula, lemak)

# Section 2: Social Assistance





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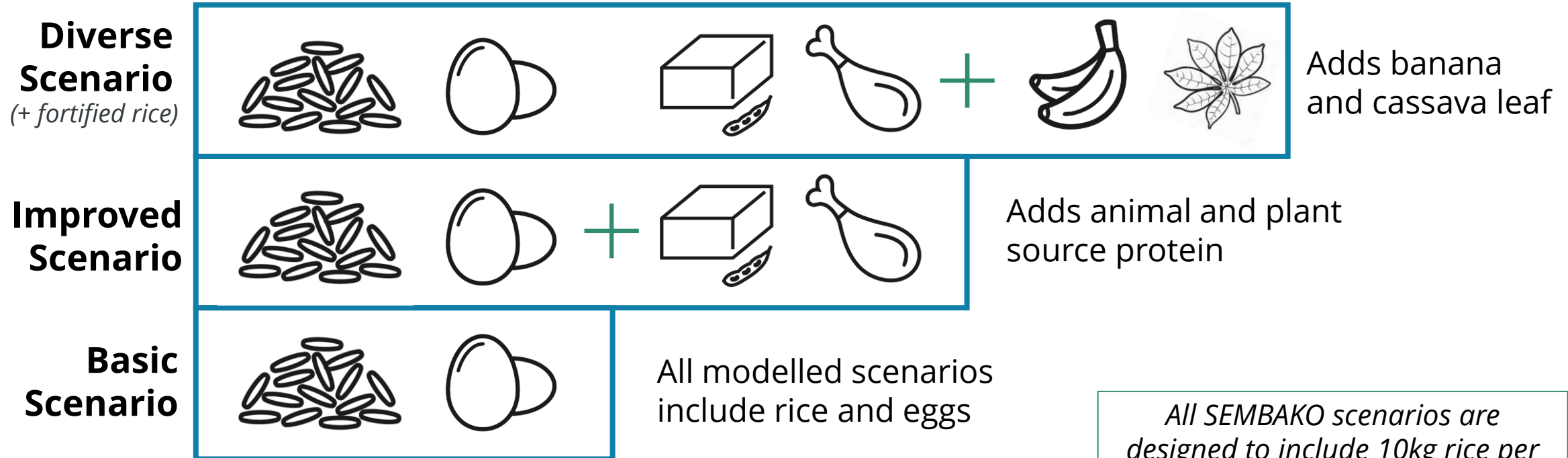
## Key Message 8

**Social assistance programmes have the potential to bring households within better reach of nutritious diets and other essential needs, and protect the most vulnerable from the worst effects of the pandemic downturn.**

**However, programmes must be made more nutrition-sensitive through improved targeting, ensuring that cash-based transfers are of adequate size, offering a range of nutritious items in the case of food transfers, and stimulating demand for nutritious foods.**

# The FNG calculates and compares various scenarios for SEMBAKO based on diversity of food items purchased by recipient households.

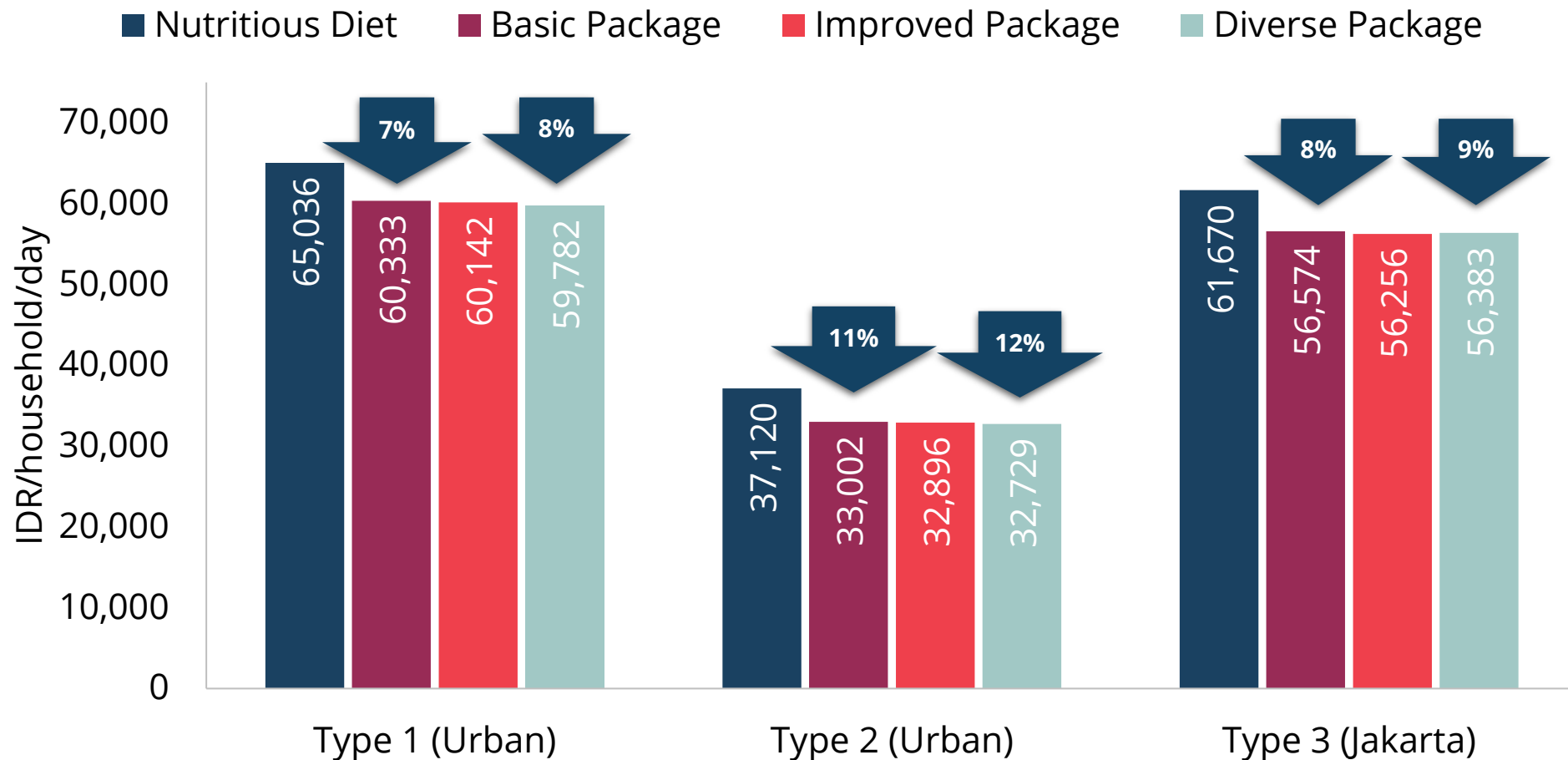
(Note: cash value is the same between all scenarios)



*All SEMBAKO scenarios are designed to include 10kg rice per month and are balanced so the total purchase **equals IDR 190,000** based on local market prices*

# In urban areas, the basic SEMBAKO package covers 7-11% of a nutritious diet cost, and the most diverse package covers 8-12%. SEMBAKO has a lower impact where nutritious diet costs are higher

*Household daily cost of the nutritious diet, urban modelling areas*

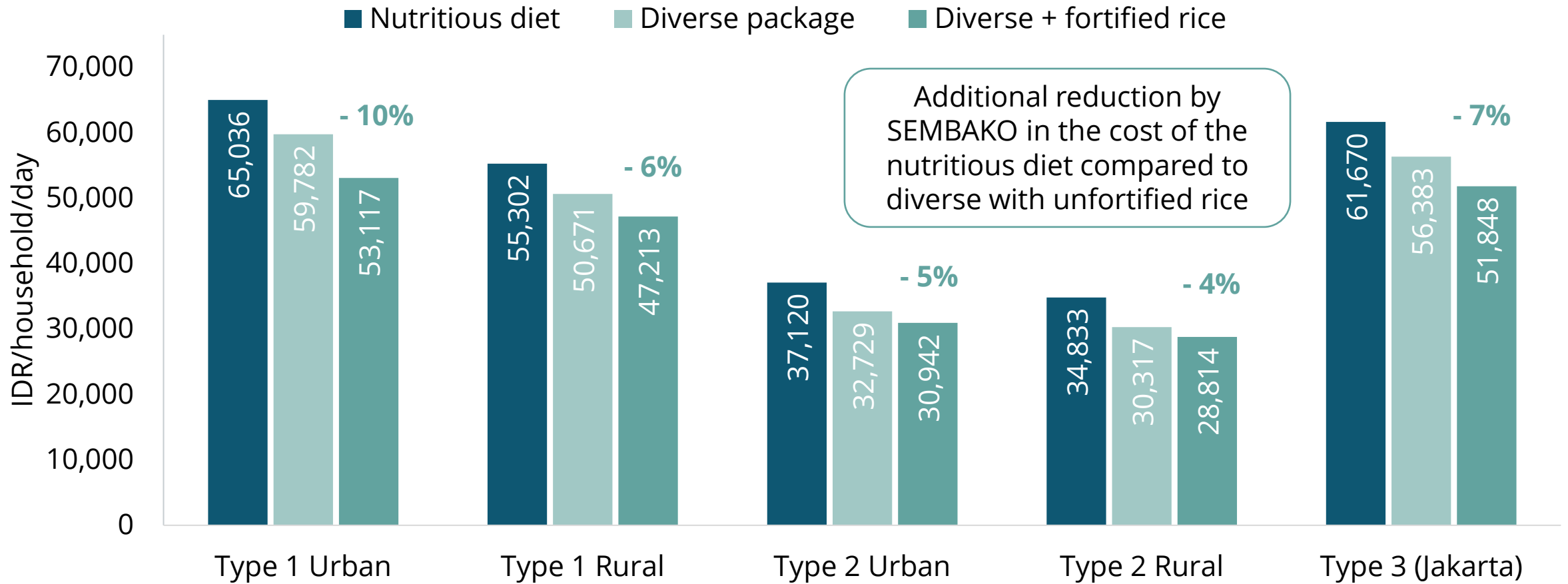


The cash value of the SEMBAKO transfer is equal to 10%-18% of the cost of a nutritious diet



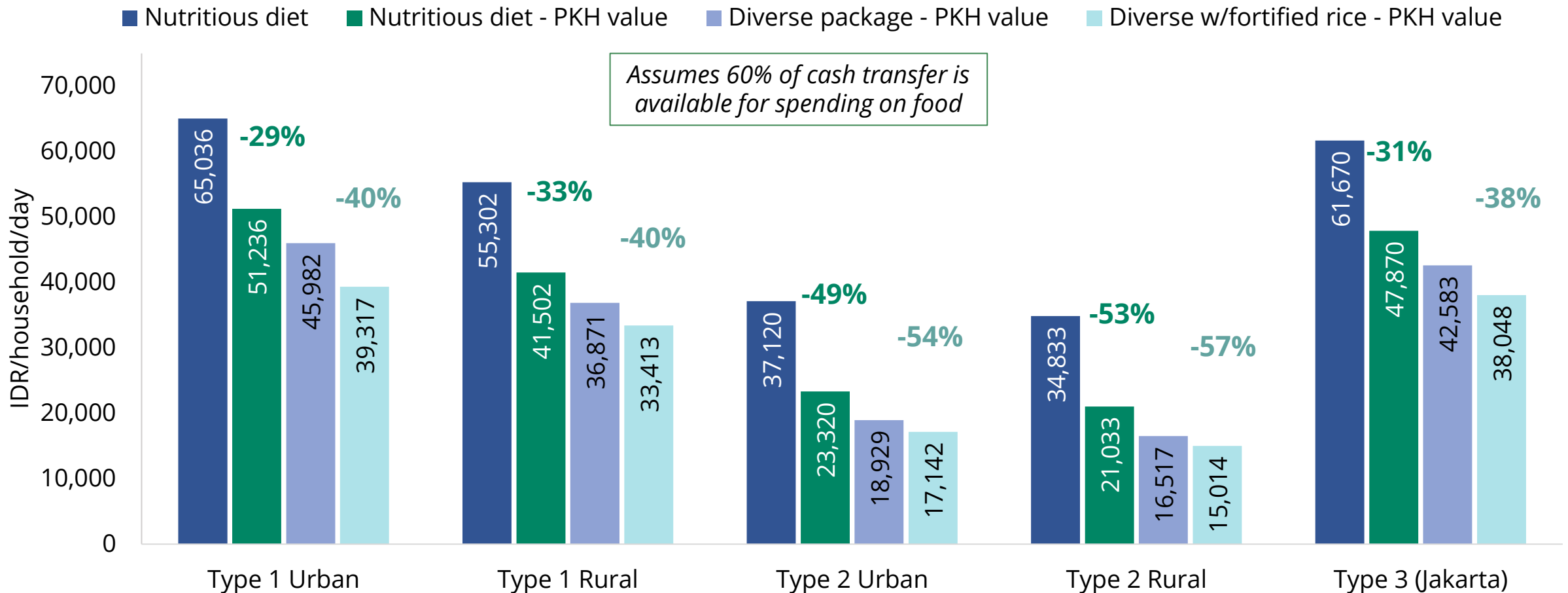
# Substituting unfortified rice with post-harvest fortified rice in SEMBAKO would enhance its impact on nutrition & health

*Household daily cost of the nutritious diet*



# Combined with the diverse SEMBAKO package, the PKH transfer can further reduce the cost of the nutritious diet, leading to a total reduction of 29-53%, and 38-57% if SEMBAKO includes fortified rice

## Household daily cost of the nutritious diet, with PKH and SEMBAKO transfers





# Stakeholder prioritized interventions: Social Assistance (1/2)

- Make social assistance programmes more **nutrition sensitive** by **reviewing the benefits package**, including the size of cash transfers, to ensure it makes a substantial contribution to the participant's financial gap to be able to afford the cost of a nutritious diet, taking into consideration **regional variations** in the cost of a nutritious diet.
- Help households optimize the utilization of the allowances provided by social assistance programmes, by **guiding participants on the use of cash for nutrition purposes**, healthy eating and food consumption habits through **nutrition education components** of social assistance programmes and beyond.



## Stakeholder prioritized interventions: Social Assistance (2/2)

- **Strengthen local government capacity** on nutrition and on implementation of nutrition interventions to ensure social assistance programmes are used as a platform for nutrition.
- Enhance the contribution of social assistance programmes to nutrition by including **nutritious commodities in the transfer** such as post-harvest fortified (or biofortified) rice and **providing nutrition-specific interventions** for groups with higher nutritional needs, such as Taburia and fortified complementary foods for children aged 6-23 months. The latter could also be delivered through the health system with eligibility determined by participation in social assistance programme(s).

# Section 3: Food Systems









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## Key Message 9

**Agricultural systems have strong potential to provide for affordable, nutritious diets to all households.**

**This will require agricultural transformation driven by policies that align incentives with nutrition outcomes, achieved by promoting diversified production and repurposing agricultural support.**

# Indonesia's import and export figures reflect strong policy efforts to boost domestic production of rice, maize, and soybeans; the result however is a poorly-diversified food production system

	Imports (thousand tons, 2018)	Exports (thousand tons, 2018)	Import Dependency Ratio (2018)
 <b>Rice</b>	2,373	4.5	<b>6.18</b>
 <b>Maize</b>	878	428	<b>1.57</b>
 <b>Soybean</b>	3,378	1.8	<b>88.12</b>
 <b>Beef</b>	124	<0.1	<b>34.68</b>

Note: Import dependency ratio indicates what percent of domestic consumption comes from imports

Domestic consumption of soybean, beef, wheat, garlic, and sugar remain highly dependent on imports

Imports of many fruits and vegetables has increased as domestic production has not kept pace with demand

A poorly diversified domestic production system that favors rice self-sufficiency drives up not only the price of rice, but also of other nutritious commodities

# Agriculture and trade policies require reform in order to support diverse production systems while allowing prices to come down, making nutritious diets more accessible

Policy efforts to support domestic rice production, such as trade restrictions and regulatory barriers, have resulted in **rice prices in Indonesia above global averages**, and even twice those of other countries in the region



While these policies have succeeded in increasing the domestic production of rice, this has come at the **expense of domestic production of nutritious foods**, as well as having **negative environmental impacts**



These agricultural support measures end up decreasing food purchasing power, and **affect the poorest the hardest** by pushing nutritious diets further out of reach

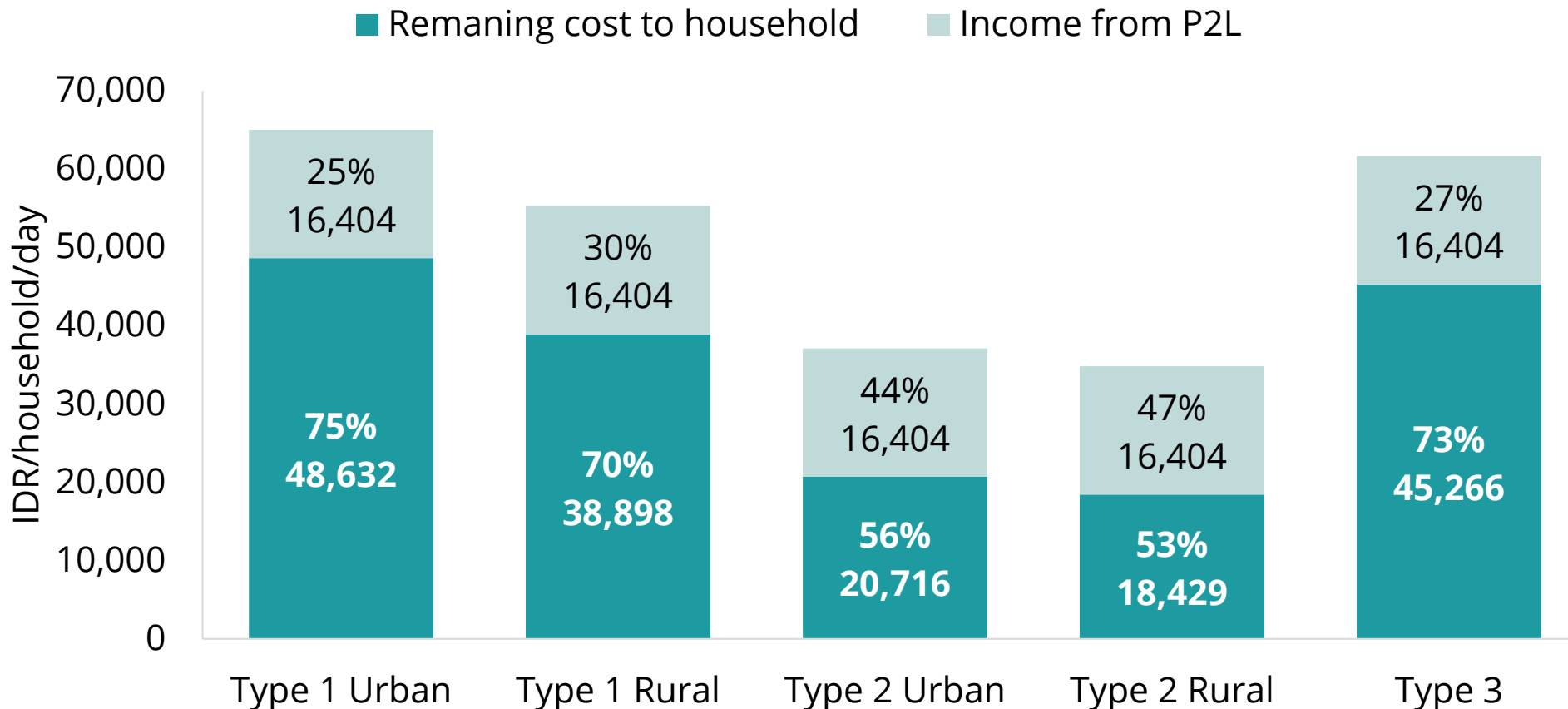


Opening the rice market up to imports would allow the price of rice, and of nutritious diets, to come down nearer to global and regional averages. This requires a **shift in orientation and spending on public interventions**



# Monetization of diverse crops from a simulated small garden in the P2L program would have the potential to contribute 25%-47% of the cost of the nutritious diet

**Household daily cost of the nutritious diet with income from P2L**



- Type 1:**
  - Maluku
  - Papua
  - Nusa Tenggara Timur
- Type 2:**
  - Aceh
  - Nusa Tenggara Barat
  - Lampung
  - Jawa Timur
  - Kalimantan Barat
  - Sulawesi Tengah
  - Gorontalo
- Type 3:**
  - DKI Jakarta



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**Key Message 10**

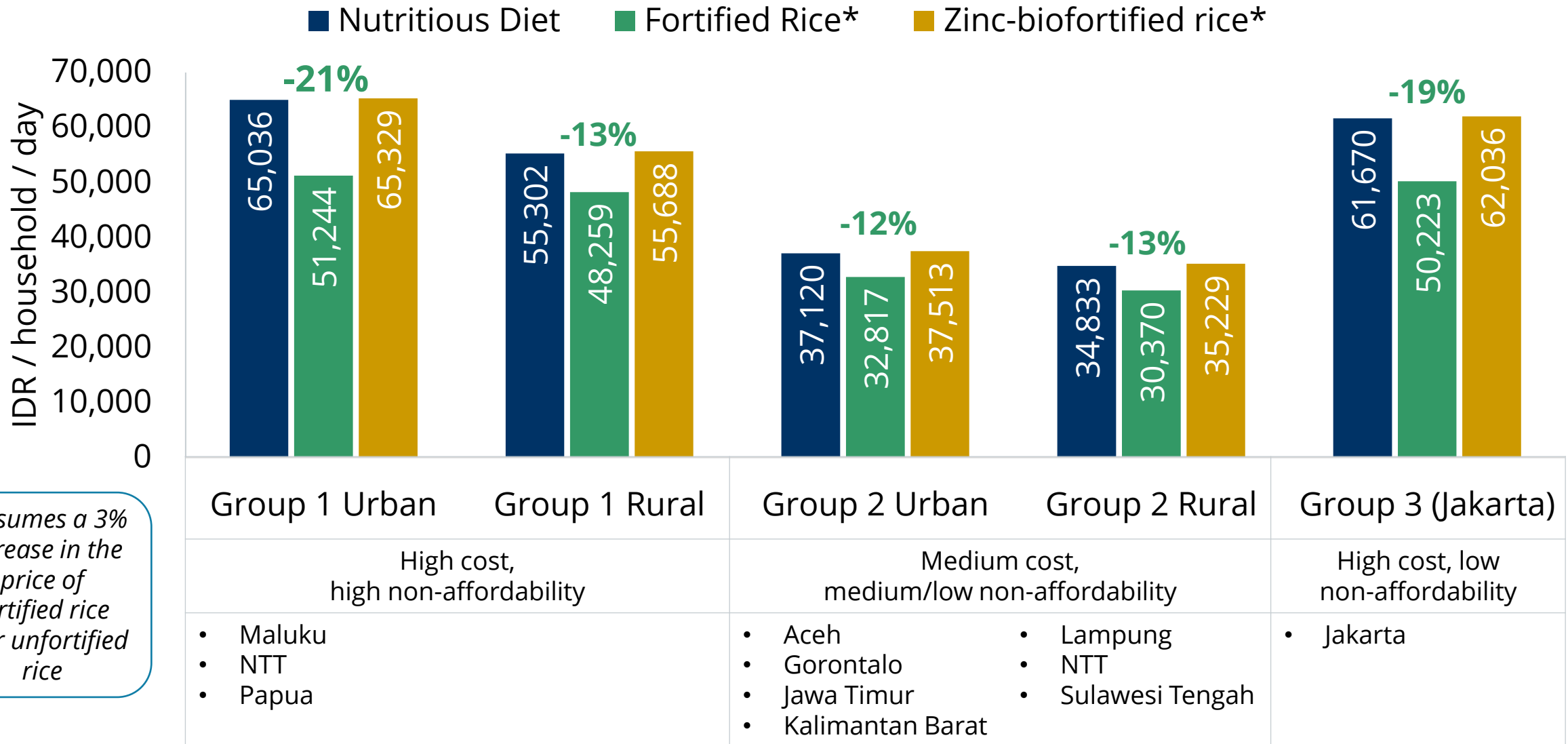
**Rice fortification can help to deliver micronutrients to households and vulnerable members, with post-harvest fortification adding a wide range and high levels of micronutrients.**

**Biofortification also has potential to better leverage the agriculture sector to make foods more nutrient-dense.**

# Post-harvest fortification and biofortification of rice are complementary interventions

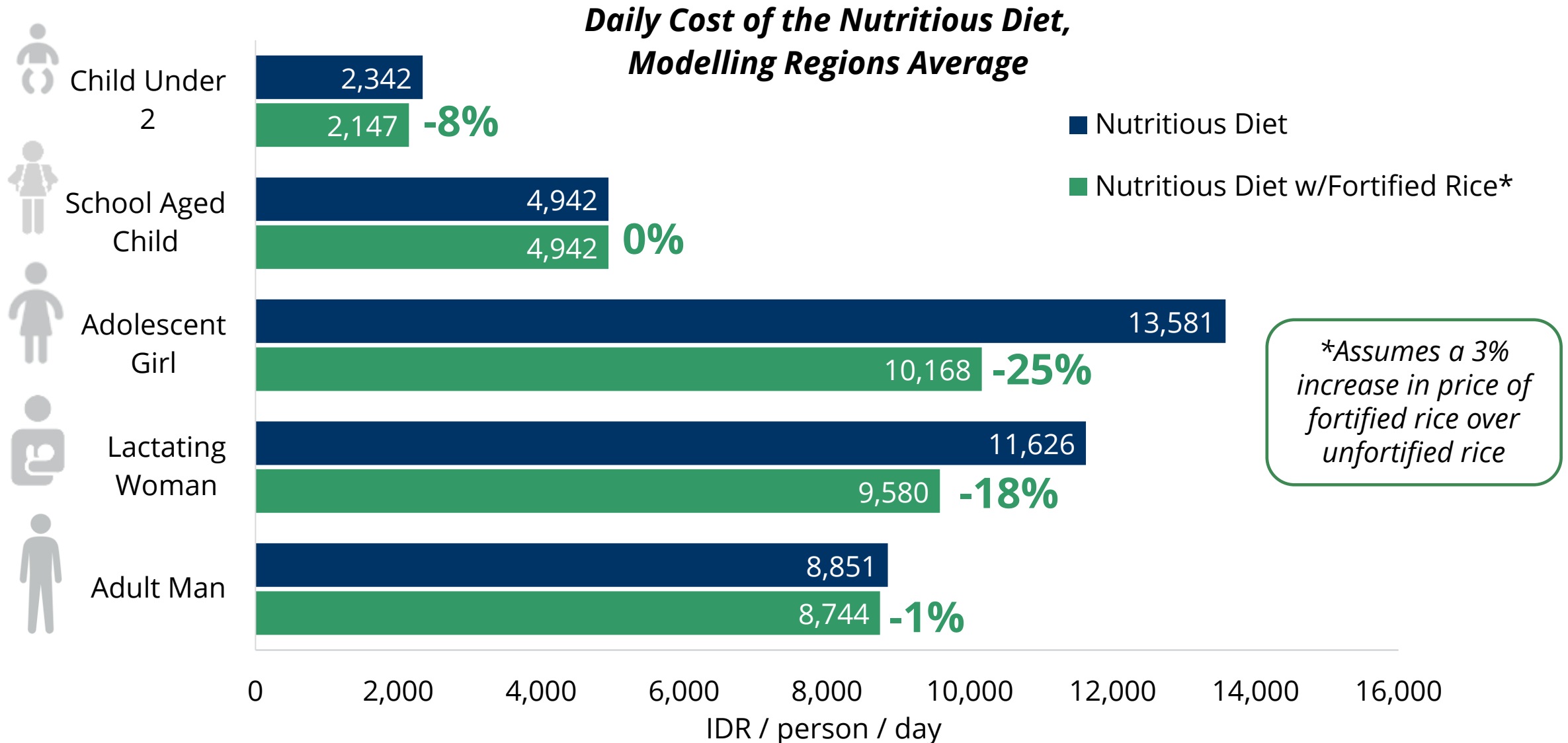
	Post-harvest fortified rice	Bio-fortified rice
Requires <b>regulation</b> (fortification standard & registration)	✓	✓
Requires <b>infrastructure</b> to produce fortified kernels	✓	
Requires availability of additional <b>inputs</b> (premix, seeds or fertilizer)	✓	✓
Requires <b>reliable supply chain</b> to ensure wide reach	✓	✓
Could provide essential micronutrients to the <b>most vulnerable population</b> through <b>social assistance transfer packages</b>	✓ 8 MNs	✓ Zinc only*
Targets <b>subsistence rice producers, village communities and rural supply chains</b> , to provide additional micronutrient(s)		✓ Zinc only*
<b>Knowledge of health benefits</b> is necessary to increase demand and willingness to pay (5-10% increase ok according to low-income consumers)	✓	✓
<b>Taste, visual appearance and smell</b> should be the same as unfortified rice to ensure acceptance and consumer demand	✓	✓

# Post-harvest fortified rice has the potential to reduce the cost of a nutritious diet by 12-21%



\*Assumes a 3% increase in the price of fortified rice over unfortified rice

# Vulnerable individuals within the household would benefit most from post-harvest fortified rice





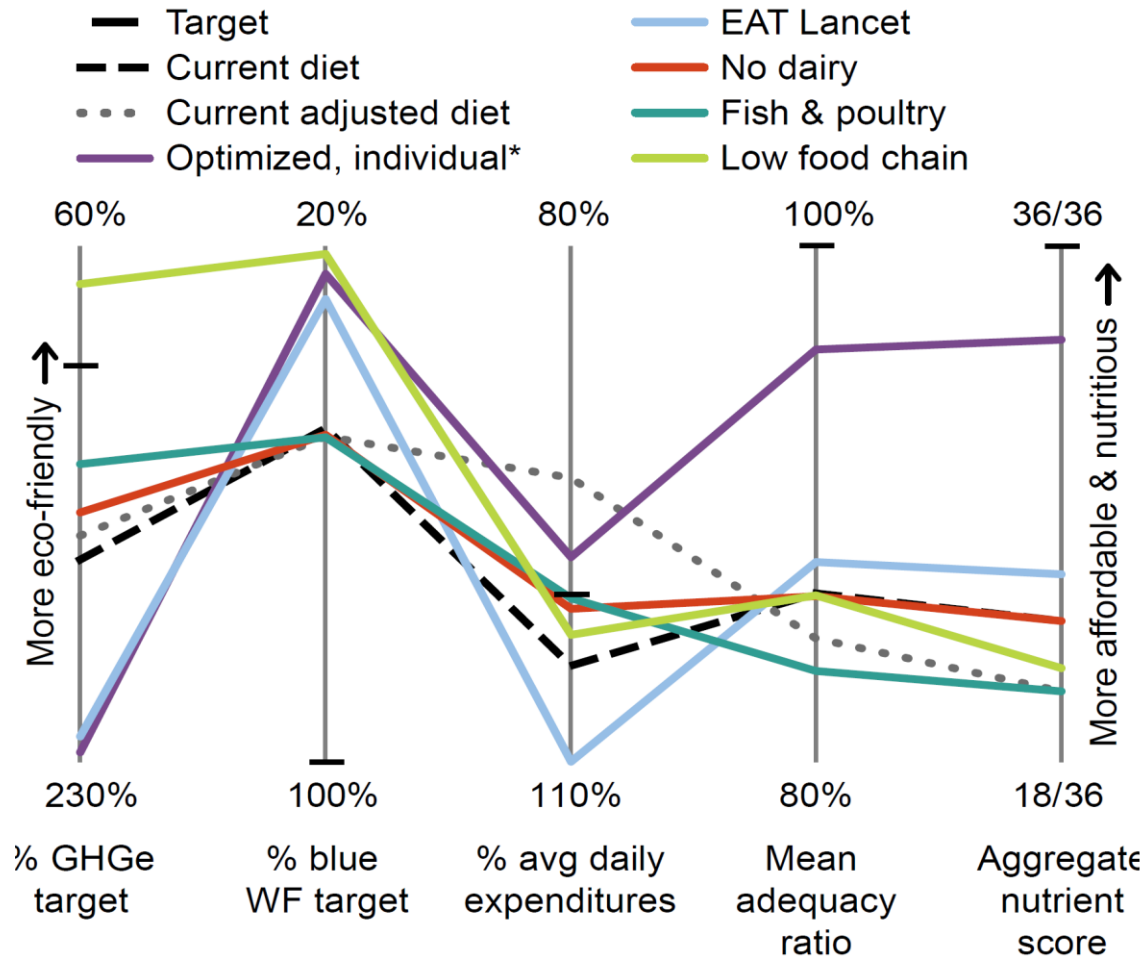
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**Key Message 11**

**Shifts in dietary patterns towards more nutritious diets may adversely impact the environment and natural resources, increasing greenhouse gas (GHG) emissions.**

**Ways to limit the environmental impacts of producing and delivering foods for nutritious diets should be optimized to reduce trade-offs.**

# A comparison of current and potential diets in Indonesia shows the trade-offs between meeting nutrient targets, affordability of diets, and environmental goals



All diets that improved on nutrition or environmental targets **cost more than current diets**

Low-food chain and more plant-based diets reduce GHGe, but **fail to meet all nutrient requirements**

Diets that are optimized to meet nutrient needs **fall further away from meeting GHGe targets** (but still 6-fold less as compared to high income countries' diets)



# Stakeholder prioritized interventions: Food Systems (1/2)


- **Scale-up the P2L** programme to further **increase smallholder income** through the **production of nutritious foods**, including fruits, vegetables, and animal source-foods for both selling at the market and for self-consumption, and the monetization of other crops.
  - Support **local government** to replicate P2L and thus ensure the sustainability of a scaled-up programme.
  - Encourage **private sector collaboration** in the P2L and in smallholder farming, to **improve technology and agricultural mechanization**.
- Prioritize the use of **biofortified crops in smallholder agriculture**.





# Stakeholder prioritized interventions: Food Systems (2/2)

- Improve **market access of smallholder farmers** to improve both local **availability** of foods and smallholder farmer's **income**.
- **Assess and address bottlenecks** throughout the supply chain of different foods in order to ensure a **more even availability and prices** across the country, through the establishment of a national logistics system.
- **Strengthen linkages** between the food system and social assistance by including **post-harvest fortified** (or biofortified) foods (such as rice) with **existing social assistance programmes** and thus ensuring these interventions reach the most vulnerable populations.



*Thank You*  
*Terima kasih*